

## Science and Technology

### Rare 5 kg moon rock auctioned for over \$600k

- An extremely rare lunar meteorite — comprised of six fragments that fit together like a puzzle — has been sold for \$612,500, according to US-based RR Auction.

### Indian monsoons influence Atlantic hurricanes

- Strong monsoons in the Indian Ocean can induce easterly winds that push Atlantic Ocean hurricanes westward, increasing the likelihood they will make landfall in the Americas, according to a study. The newly-discovered relationship could help scientists better predict the path of oncoming hurricanes, especially in late summer months like September, when Atlantic hurricane activity peaks

### Emission testing Facility

- Science and Technology Minister Harsh Vardhan said an Emission testing Facility has been established at CSIR-NEERI and extensive training is in progress for conventional and green crackers for monitoring the emissions and sound.

### SWAS, SAFAL and STAR

- CSIR scientists have developed Less Polluting Firecrackers which are not only environment friendly but 15-20 % cheaper than the conventional ones.
- These crackers have been named as safe water releaser (SWAS), safe minimal aluminium (SAFAL) and safe thermite cracker (STAR).

## 5.1 Inventions / Discover

### Tiny spheres can trap water pollutant

- Scientists have created tiny spheres that can catch and destroy bisphenol A (BPA), a synthetic chemical used to make plastics that often contaminates water.

**IIT Guwahati fabricates superior scaffold for cartilage repair**

- Researchers from Indian Institute of Technology (IIT) Guwahati have addressed this shortcoming by fabricating a silk scaffold where the junction between the cartilage and bone scaffold is continuous and seamless and hence less prone to damage under load-bearing environment of the joint.

**Bacteria to degrade toluene**

- Using bacteria isolated from soil and effluents near an oil refinery, researchers from the University of Delhi and Indian Institute of Technology (BHU), Varanasi, have successfully degraded toluene into less-toxic byproducts.

**Cell-sized robots can be used to detect diseases**

- MIT scientists have developed a method to mass produce robots no bigger than a cell “syncells” (short for synthetic cells) that could be used to monitor conditions inside an oil or gas pipeline, or to search out disease while floating through the bloodstream.

**World’s smallest optical gyroscope developed**

- Scientists have developed the world’s smallest optical gyroscope – a device that helps vehicles, drones and handheld electronic devices know their orientation in 3D space.

**Two new gecko species**

- The spot-necked day gecko and the Anaimudi day gecko, both very distinctly-patterned lizards found only in the Agasthyamalai and Anamalai hill ranges in the Western Ghats, are the latest additions to India’s reptile fauna.

**New leaf-warbler bird species discovered in Indonesia**

- A new bird species founded named as *Phylloscopus rotiensis* after the Rote, dry Indonesian island, the only locality where it can be found.

**Aloe vera to remove oil from water**

- IIT Guwahati researchers use aloe vera gel to convert a commercially available porous material that is oil-loving (oleophilic) to become extremely oil-repelling by coating it with the gel.

**5.2 Space Science****First moon outside our solar system discovered**

- Astronomers have discovered the first moon detected outside our solar system, a large gaseous world the size of Neptune that is unlike any other known moon and orbits a gas planet much more massive than Jupiter.

**Japan drops new robot on asteroid**

- Hayabusa2, a Japanese probe launched the French-German Mobile Asteroid Surface Scout, or MASCOT, towards the Ryugu asteroid's surface by the Japan Aerospace Exploration Agency (JAXA) to shed light on the origins of the solar system.

**Parker Solar Probe completes first Venus flyby: NASA**

- NASA's Parker Solar Probe – mankind's first mission to 'touch' the Sun – successfully completed a flyby of Venus at a distance of about 2,415 kilometres during its first gravity assist from the planet, according to the US space agency.

**Superflares from young stars may imperil planets: NASA**

- Violent flares from the host star may make planets orbiting it uninhabitable by affecting their atmospheres, scientists using NASA's Hubble Space Telescope have found.
- Hubble is observing such stars through a large programme called HAZMAT — Habitable Zones and M dwarf Activity across Time

**NASA probe to fly by most distant object ever visited by a spacecraft**

- NASA's New Horizons probe is on course to flyby the Kuiper Belt object nicknamed Ultima Thule, which is at a distance of 6.6 billion kilometers from Earth this New Year. This event will set the record for the most distant object ever visited by a spacecraft.

**Europe, Japan send spacecraft on 7-year journey to Mercury**

- European and Japanese space agencies said an Ariane 5 rocket successfully lifted a unmanned BepiColombo spacecraft carrying two probes into orbit for a joint mission to Mercury, the closest planet to the sun.

**NASA names gamma-ray constellations after Godzilla, Hulk**

- NASA scientists have devised a new set of 21 modern gamma-ray constellations and named them after fictional characters such as the Hulk and Godzilla.

**NASA CubeSat beams back image of Mars**

- NASA's first CubeSats called MarCO-A and MarCO-B, to travel into deep space have beamed back an image of Mars visible as a tiny red dot against the dark sky.

**First Soyuz Rocket launched successfully**

- Russia has successfully launched a Soyuz rocket for the first time since the failure of a similar rocket aborted a manned take-off to the International Space Station (ISS) on October 11.

**5.3 App/ Web Portal/ Toll Free****“Digi Yatra”**

- Civil aviation Ministry releases the policy on Biometric based Digital processing of passengers at airports called “Digi Yatra”.

**‘cVigil’**

- The “cVigil” mobile application for citizens to share proof of malpractices by political parties, candidates and activists would be available for use soon after the notification of polls in five States.

**Aeroindia 2019 Website**

- India is hosting the 12th edition of “Aero India 2019” at Air Force Station, Yelahanka, Bengaluru, (Karnataka) from 20 to 24 February, 2019. A newly designed website has been launched for Aero India 2019 (<https://aeroindia.gov.in>) for registration of exhibitors and visitors.

**New online portal for facilitating filing of online applications for Industrial Entrepreneurs’**

- Department of Industrial Policy and Promotion (DIPP) has developed a new online portal for grant of Industrial Entrepreneurs’ Memorandum and Industrial Licence

**Android app ‘Rail Partner’ to provide authentic rail data**

- Named ‘Rail Partner’, the Android app rolled out for Indian Railways by the passenger marketing wing of the commercial department of Southern Railway provides an array of information and services and acts as a direct communication medium between passengers and Railways.
- ‘Rail Partner’ will also provide direct call facilities to 20 most required helplines

**DRDO website ‘The Kalam Vision – Dare to Dream’**

- Defence Minister Nirmala Sitharaman dedicated a DRDO website ‘The Kalam Vision – Dare to Dream’ to former president and ‘Missile Man’ Dr APJ Abdul Kalam in New Delhi.

**“Main Nahin Hum”**

- The portal which works on the theme “Self for Society” will enable IT professionals and organizations to bring together their efforts towards social causes, and service to society, on one platform. the portal is expected to help catalyse greater collaboration towards the service of the weaker sections of society, especially by leveraging the benefits of technology.

**‘Khushi’**

- Life insurer PNB Metlife has unveiled an Artificial Intelligence (AI)-powered customer service app ‘Khushi’.
- The app is designed to be a one-stop shop providing insurance-related information, anytime, anywhere, such as policy features, premium due details besides providing fund value and portfolio details.

**Web portal of the Scheme for Promotion of Academic and Research Collaboration (SPARC)**

- The Minister of Human Resource Development, Shri Prakash Javadekar launched the web portal of the Scheme “Scheme for Promotion of Academic and Research Collaboration (SPARC)” in New Delhi.

**AMRUT scheme**

- The Assam government will provide drinking water facilities to urban households of the state using Brahmaputra river as the main source, under the AMRUT scheme.

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